NATIONAL WEATHER SERVICE, ALBUQUERQUE

New Mexico

Skywatcher

VOLUME 9, ISSUE 2 OCTOBER 2013

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Shifting Gears

Many locations within northern and central New Mexico have observed cooler than average temperatures numerous times this October, and much of the area has seen freezing temperatures on more than one occasion. In addition, some high mountain snow has fallen in northern parts of the state. This is all an abrupt reminder that the autumn season has made its appearance. After a busy monsoon season, the Albuquerque National Weather Service has shifted gears, altering our mindset and focus from heavy rain, strong thunderstorms, and flooding to sub-freezing temperatures, increasing winds, and more bouts of mountain snowfall.

As you peruse this Fall Edition of the New Mexico Skywatcher newsletter, we invite you to check out page 4 where you can review how to submit an online storm report. Now that we are approaching the winter months, your reports of snowfall, strong winds, and other hazardous winter conditions are a valuable asset to our forecast operations. Don't forget to stop by the Co-op Corner, and then swing by Page 3 where we acknowledge some of our cherished volunteer weather observing stations. Interested in satellite technology? Page 5 has some of the latest offerings from NASA. We'll then wrap things up with a recap and summary of this past summer, in weather terms of course!

Author: Todd Shoemake

The Radio Room

Tim Shy assesses the damage to the vertical antenna after a severe storm hurled out an 89 mph wind gust at the Albuquerque Weather Forecast Office on July 26, 2013.

Boiiing! Snap! Those could have been the cartoon sounds as our vertical HF antenna parted guy lines and was bent by a wind gust topping 80 mph this summer. No ham radio operator who has faced an antenna crunch can ever be happy about it; our anguish was no exception. However, we take calamity and turn it into a plus, as plans are afoot to install a horizontal Windom skyhook in place of the vertical to provide HF coverage for WX5ABQ. There is a clear cut advantage here: the increased radiation angle will provide better New Mexico coverage at the expense of working the big DX. This may seem backwards to hams (like me!) who love to chase the big DX, but WX5ABQ is above all a working station with a real mission to fulfill. Along these lines, cooling temperatures are signaling that WX5ABQ now becomes a key part of our winter weather emergency communications. Plan on showing how ham radio operators lead the way with those snow reports as you are out and about. And, keep track of those dates for the December SKYWARN Recognition Day Special Event. You'd enjoy working us, and we'd have a ball working (and thanking) you!

73 de Tim, KM4KS, Trustee of WX5ABQ

Co-op Corner

A MESSAGE TO OUR COOPERATIVE OBSERVERS

WINTER REMINDER

It's time to bring the snow measuring equipment back out! It is a good idea to review your snow measuring guidelines within the next few weeks to prepare for this seasonal change. Keep an eye on the temperatures to determine when to bring the funnel and inner tubes in from your rain gauges. Funnels should be brought in once snow is likely. Also, if you have a snow measuring board be sure to place this outside on a flat surface and dig out your snow measuring stick. Lastly, our Coop team will be making the semi annual rounds to Fisher Porter sites for winterization.

LOOKING FOR VOLUNTEERS

The National Weather Service in Albuquerque is looking for volunteer cooperative (co-op) weather observer at multiple locations across the state. In addition to joining a nationwide volunteer network (comprised of over 140 observers in New Mexico alone), the co-op observer will have National Weather Service weather measuring equipment installed at their location by an NWS employee and will be trained on how to use the equipment and how to send in daily weather information for that location. The elements that will need to be recorded for a standard co-op site are the maximum and minimum temperatures along with precipitation (both rain and snow). For a Fischer Porter Electric (FPR-E) site, the observer will be responsible for sending in electronically recorded precipitation data, via email, using a NWS issued USB drive. The equipment will be maintained by the NWS with annual visits to standard sites and bi-annual visits to FPR-E sites. The data provided by these individuals are critical to the mission of the NWS, as it continues the climate history for these various locations across the state. As climate data is accumulated at these sites, meteorologists and climatologists are able to establish local and regional trends, and apply the data to ongoing research. Not only are the collected datasets vital to NWS operations other government agencies, but broadcast media outlets and the general public also take a keen interest in the climate data collected.

We would like volunteers who:

- Are organized/detail oriented.
- Have internet access to transmit daily reports.
- Have space at their location for equipment.
- Are willing to submit daily weather observations.

If you are interested in becoming a volunteer weather observer at one of the listed locations please give us a call at (505) 243-0702. <— (See sidebar to the left for cities of interest.)

Authors: Amanda Martin & Jason Frazier

COOPERATIVE OBSERVER SERVICE AWARDS:

- **Jack McCarty**
  McCarty Ranch
  30 Years of Service
- **Mary Sullivan**
  Dilia
  25 Years of Service
- **Rita Beard**
  Abbott 1 SE
  25 Years of Service
- **Nancy Coonridge**
  Pietown
  25 Years of Service
- **Dwayne Wilkerson**
  Newkirk
  20 Years of Service
- **Frank Kozeleski**
  Gallup
  10 Years of Service

CITIES IN NEED OF OBSERVERS:

- ◊ *Elida*
- ◊ *Ft. Sumner*
- ◊ *Glorieta*
- ◊ *Pecos*
- ◊ *Placitas*
- ◊ *Ramon*
- ◊ *Sandia Park*
- ◊ *Tierra Amarilla*

Recognizing Our Observers

HONORED INSTITUTION AWARDS

The National Weather Service in Albuquerque is grateful to have a vast network of Cooperative weather observers across New Mexico who report daily high and low temperatures along with precipitation measurements and special reports during severe weather. These timely and accurate daily observations are invaluable to the NWS, as well as other hydrological and climatological entities. Over time these consistent observations build an in-depth climatological record; this record gives meteorologists and climatologists a reference to study past, current, and future weather events on a daily, seasonal, and annual basis. It cannot be reiterated enough, but the dedicated volunteer work of our cooperative weather observers serves as a cornerstone for much of the work that the NWS does.

75 years Honored Institution Award
Beaverhead (US Forest Service)

On June 13, 2013, a 75 year Honored Institution Award was presented to the Beaverhead Ranger Station of the U.S. Forest Service, located about 30 miles west of Winston in Catron County, New Mexico. This area is known as the Black Range in the Gila National Forest. The excellent staff at this district work in a great team environment, reporting the daily weather conditions. The Beaverhead District continues to make, significant contributions to our knowledgebase of weather and climate of this remote sector of southwestern New Mexico. Thank you for your service!

Above: Ray Jojola of the Albuquerque National Weather Service presented the dedicated team at the Beaverhead District with a certificate acknowledging 75 years of service in the cooperative weather observation program. A special thank you to Willie Kelly for many years of service!

Above: Theresa Sershen of the Carson National Forest Service proudly displays a certificate, honoring 75 years of service in the cooperative observer program at El Rito.

75 years Honored Institution Award
El Rito (US Forest Service)

The El Rito Ranger Station in the Carson National Forest of New Mexico was also recently presented with a 75 year Length-of-Service Award in recognition of their diligence and loyalty to the cooperative weather observation program. Nestled in the beautiful mountains of southern Rio Arriba county, the El Rito Ranger District observes a wide spectrum of different weather conditions. Although the weather may be fickle, the El Rito rangers have been consistently measuring the temperature and precipitation on a daily basis for over 75 years. Pictured accepting the award is Staff Ranger, Theresa Sershen.

50 years Honored Institution Award
Navajo Dam

On June 11, 2013, the current observation team at Navajo Dam was presented with a 50 year Honored Institution Award. Navajo Dam, managed by the U.S. Bureau of Reclamation in northwestern New Mexico is a unique location in the state, and having weather records dating back to 1963 is a remarkable feat. The data collected at this site is an asset to many different fields with interests in northwestern New Mexico. The NWS in Albuquerque is proud and grateful for the service the staff at Navajo Dam provides as they record daily weather observations.

Authors: Raymond Jojola & Troy Marshall

Above: A certificate acknowledging 50 years of excellence in weather observing was proudly presented to the staff at Navajo Dam this past June. Accepting the award was Jerry Tensfield.

Where Does My Report Go?

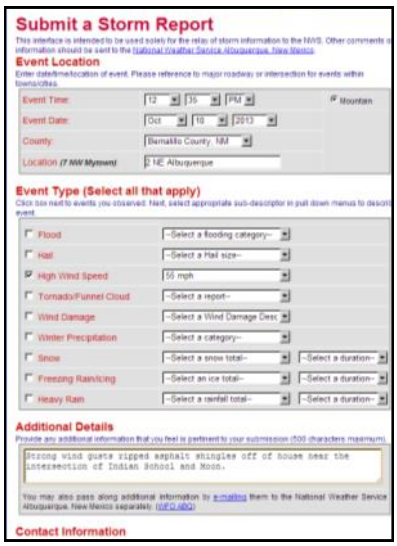
Above: The "Storm Report" interface can be accessed via a link on the Albuquerque NWS home page at www.weather.gov/abq.

Many of our cooperative observers and SKYWARN spotters have utilized the electronic "Storm Report" form on the Albuquerque National Weather Service webpage (weather.gov/abq). This handy tool allows users to quickly submit a report of significant or severe weather during special weather scenarios. While our office will always welcome a phone call, this web-based interface is a valuable resource to Weather Service operations that can quickly and efficiently inform forecasters of ongoing conditions. The Albuquerque National Weather Service monitors and maintains an extensive array of data networks, including automated surface observation sites, radar, satellite, and lightning detectors. However, many times these elaborate data networks do not give us all the information we need. We rely heavily on ground truth reports from observers and spotters to fill in the gaps beneath the radar beams and between the often distant automated observation sites.

You can play a pivotal role in the operations of the Albuquerque Weather Service by relaying your reports of significant or severe weather to our office. When hazardous weather strikes, your reports assist us in fine-tuning our warnings, and they also provide beneficial verification to our warning forecasters.

The next time powerful winds, heavy snow, or severe thunderstorms impact your neighborhood, consider submitting a report to our office. From our main webpage, click on the "Storm Report" link to initiate a Graphical User Interface that will allow you to quickly and methodically submit your report to us.

Once you have entered and submitted your report online, an "in-house" alarm is triggered in the Weather Service operations center. The report is then carefully scrutinized for accuracy and appropriate geographic locational information. Warning and radar forecasters immediately employ the information within the report to better assess the ongoing weather scenario, and apply any necessary changes to warning or forecast products. During times of severe weather, the operations center can become extremely busy. Utilizing the online "Storm Report" function not only frees up phone lines, but it also allows personnel in the Weather Service office to remain focused on other time-sensitive tasks that are essential to severe weather operations.



The online Storm Report interface is fairly straightforward. Don't forget to be as precise as possible when entering your location!

All incoming storm reports are logged and input into a database that allows easy search and access of data by date, time, location, or weather type.

The report information is then processed into a database that archives it chronologically and allows it to be easily searched and referenced later. Many common reports such as rainfall amounts, wind gust speeds, and snow amounts are tallied together to generate maps that are distributed on our webpage.

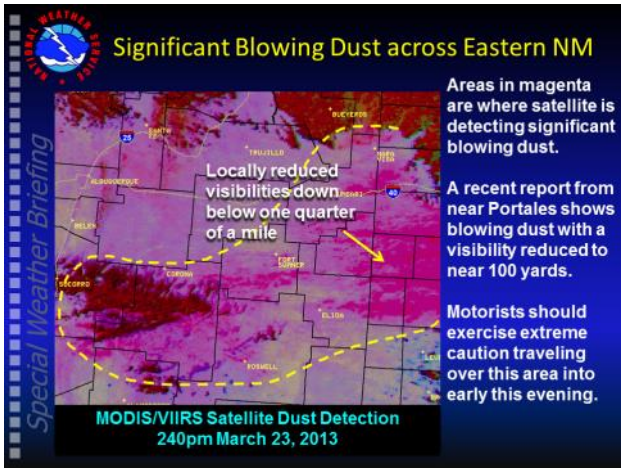
For those of you that have already experimented with the "Storm Report" form on our webpage, we thank you! If you have not yet tried it, we invite you to share your significant weather information with us!

Author: Todd Shoemake

Collaboration with NASA SPoRT:

SUPPORTING THE TRANSITION OF NEW SATELLITE PRODUCTS INTO NWS OPERATIONAL FORECASTING

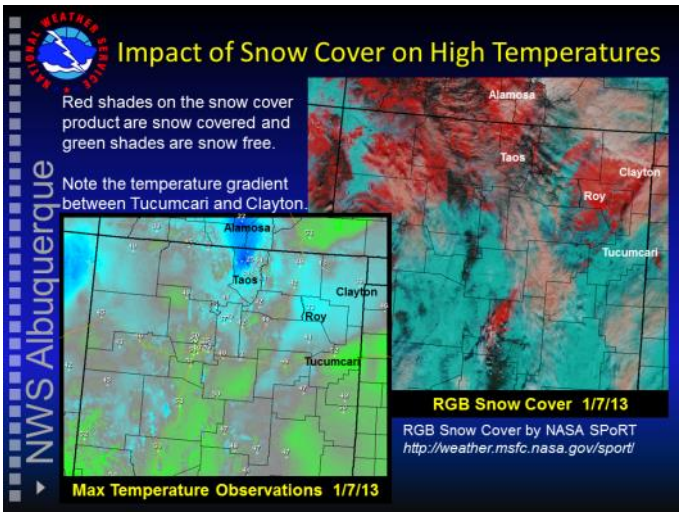
The Albuquerque NWS office entered a collaborative partnership with NASA's Short-term Prediction and Research Transition Center (SPoRT) in 2007. The NASA SPoRT program focuses on transitioning unique observations and research capabilities to the operational weather community to improve short-term forecasts on a regional scale. This collaboration has placed various NWS partners and university programs at the forefront of advanced satellite analysis. The products made available by SPoRT have supported numerous operational programs at NWS Albuquerque by supplementing data void areas, enhancing decision support services, and expanding satellite training to the future capabilities of GOES-R (Geostationary Operational Environment Satellite, R Series). The collaborative transition of these unique satellite observations has provided valuable input not only for our operational products but also for our graphic forecasts, conference calls, emergency manager briefings, social media postings and media interviews.



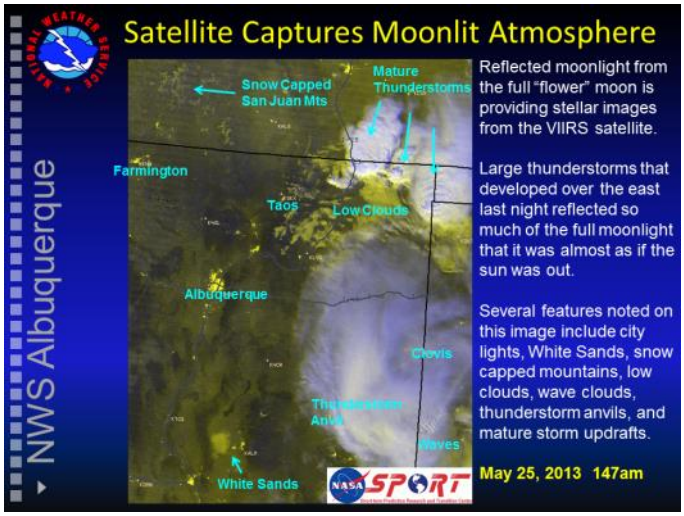
This specialized graphic from this past spring displays a derived Red-Green-Blue (RGB) product from the MODIS/ VIIRS satellite imagery. This product helps locate areas of lofted dust in the air by highlighting them in magenta.

The most recent product evaluations have focused on a suite of Red-Green-Blue (RGB) composite products developed by SPoRT and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT). These composite products use the Moderate Resolution Imaging Spectroradiometer (MODIS) and the Visible Infrared Imaging Radiometer Suite (VIIRS) satellite instruments as proxies to future GOES-R capabilities. GOES-R is scheduled to launch in 2015 and is expected to lead to more accurate and timely weather forecasts due to improved detection and observation of meteorological phenomenon. It is expected to positively impact public safety, protection of property, and ultimately, economic health and development. The GOES-R proxy products in the examples presented below focus on creating composite imagery to depict blowing dust, snow cover, and cloud microphysics.

Author: Brian Guyer



Sometimes differentiating between snow cover and cloud cover can prove difficult to forecasters. However, specialized SPoRT products can help forecasters pinpoint areas of snow cover over land, ultimately helping us fine-tune temperature forecasts.



This nighttime VIIRS satellite graphic was created in late May, showing moonlight reflected off of decaying thunderstorms in eastern New Mexico. In addition, city lights and other reflective surface can be seen where skies have cleared.

Summer 2013 Recap

Getting into a third year of severe to exceptional drought in 2013, most New Mexicans had forgotten what normal precipitation numbers looked like, and many were wondering if the monsoon would ever deliver the big rain events that the state desperately needed.

Devastating wildfires raged across large swaths of New Mexico in 2011 and 2012, and the late spring and early summer months of 2013 continued this trend. The Tres Lagunas, Thompson Ridge, Jaroso wildfires burned a combined 45,386 acres in the late spring of this year. As the monsoon arrived in early July, the weather quickly transitioned to a wetter pattern with more numerous thunderstorms. Several individual and isolated memorable thunderstorm events were recorded through July and August. In September, much of New Mexico was inundated with widespread heavy rainfall and flooding of historic proportions. Follow along as we recap the Summer of 2013 through photographs.

"...in early July, the weather quickly transitioned to a wetter pattern..."

More Wildfires

The Jaroso wildfire produced billowing smoke clouds known as pyrocumulus. Photo courtesy of Dan Gerrity in Santa Fe.

Supercells

Above: This severe storm on August 15, 2013 produced hail up to 2 inches in diameter (about the size of a hen egg) near and east of Clovis. Photo by Whitney Schmitt.

Albuquerque Superstorms

Right: Don Armstrong of Albuquerque captured a long camera exposure of several cloud to ground lightning strikes on July 26, 2013.

Right: Extensive tree damage was observed across Albuquerque on July 19, 2013. Photo courtesy of Jim Reynolds.

Copious Hail

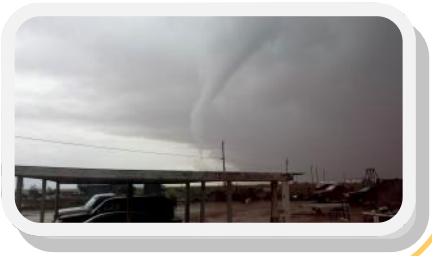
On July 3, 2013 a severe thunderstorm dropped copious amounts of hail in east central New Mexico. In this image, piles and drifts of hail can be seen lining the streets of Santa Rosa. Image courtesy Santa Rosa Fire Department.

Abundant hail accumulations lined New Mexico State Highway 197 between Cuba and Torreon on September 22, 2013. Photo courtesy of Kerry Jones.

Summer 2013 Recap (continued)

Funnel Clouds

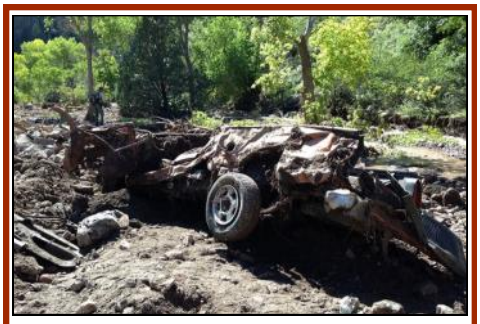
Right: A funnel cloud was observed near the National Radio Astronomy Observatory on September 18, 2013. Photo courtesy of Jim Bozwell.



Right: A tropical funnel cloud briefly developed near Shiprock, NM on September 10, 2013. No damage was reported. Photo courtesy of Matthew Aleksa.

Historic Flooding

Damage to "The Catwalk" along Whitewater Creek in Catron county occurred during the historic flooding of September 2013. This image shows damage to the trail from a flood induced landslide. Photo courtesy of Andrea Martinez.



Several vehicles were swept into Silver Creek near Mogollon on September 15, 2013. This image was taken on September 19th, a few days after flash flooding had subsided. Unfortunately, one fatality was reported. Image by Mary Walker.

Infrastructure at Bandelier National Monument was damaged during flooding on September 13, 2013. The road to the park was undermined and nearly destroyed. Photo by National Park Service.

Several rivers flooded during the historic heavy rain that fell in September 2013. One river that flooded was the Gallinas in east central New Mexico (northwest of Santa Rosa). This hydrograph (located near Colonias) shows the river cresting at 28.41 feet on September 17th. This was the highest observed crest ever recorded, breaking the previous record of 27.2 feet in 1937.

Image by Andrea Martinez on September 16, 2013 after flooding had washed debris into the Gila Cliff Dwellings monument and nearby campgrounds.

Jim Wheeler, assistant Emergency Manager of Socorro County, shared this image on September 17, 2013 during an aerial flood damage survey. The view includes the Rio Puerco which exceeded its banks near Bernardo. Note that U.S. Highway 60 was also flooded.

Authors: Kerry Jones & Todd Shoemake

By The Numbers

The 2013 monsoon, or summer thunderstorm season, brought much more precipitation to northern and central New Mexico than recent years. In fact, precipitation totals from the months of June through September this year easily exceeded last year's totals by 50% or more in most locales. July and September were the most productive months as far as precipitation was concerned. Strictly analyzing cooperative observers within northern and central New Mexico, here is a look at the top seven precipitation totals.

Location	Precipitation (June-September 2013)	Observer
Gascon	18.84 inches	Editha Bartley
Conchas Dam	16.84 inches	U.S. Army Corps of Engineers
Augustine 2E	16.19 inches	National Radio Astronomy Array
Luna	15.13 inches	U.S. Forest Service
Raton	15.04 inches	KRTN Radio
Los Alamos	14.99 inches	University of California
Lake Maloya	14.69 inches	New Mexico State Park - Bob McIvor

The Tres Lagunas wildfire in the Pecos Wilderness area produced smoke that was transported all the way to far eastern New Mexico and west Texas. The smoke scattered the sunlight and caused the sun to appear red. Image taken on May 31, 2013 in San Jon by Gerald White.

Temperatures were warmest prior to the arrival of monsoonal moisture, especially during the stretch between June 26th through June 28th. Similar to last year, the Bosque del Apache observing site had the hottest summer temperature within all of northern and central New Mexico. Several locations tied or set daily records during this June 26th through June 28th stretch. More impressive is that Fort Sumner tied the all time record high of 108º F on June 27th, and Tucumcari tied its all time record high of 109º F on June 28th. Los Lunas set a new all time record high of 108º F on June 28th.

Location	Highest Temperatures	Observer
Bosque Del Apache Wildlife Refuge	111º F on June 28	U.S. Fish and Wildlife
Rio Rancho	110º F	Rick Koehler
Roswell Airport	109º F on June 26	FAA
San Jon	109º F on June 27	Gerald White
Tucumcari 4NE	109º F on June 28	New Mexico State University
Bitter Lake Wildlife Refuge	108º F on June 27	U.S. Fish and Wildlife
Fort Sumner 5S	108º F on June 27	Ellen Vaughn
Los Lunas	108º F on June 28	New Mexico State University
Conchas Dam	108º F on June 28	U.S. Army Corps of Engineers

Albuquerque, New Mexico
(505) 243-0702

The New Mexico Skywatcher

Would you like to receive notice of future issues?

The New Mexico Skywatcher will be available on your NWS website at http://www.weather.gov/abq. If you would like to be notified of new issues via email, submit your request to sr-abq.webmaster@noaa.gov (make sure to state your name and email address).